

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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In re application of:

David R. Hembree  
Alan G. Wood

Serial No.: 09/933,492

Art Unit: 2815

Filing Date: 08/20/2001

For: SEMICONDUCTOR COMPONENT  
HAVING CONDUCTORS WITH  
DIGITAL DATA PATTERN  
(AS AMENDED)

Examiner: Chu, Chris

Attorney Docket No. 00-0625.1

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**REPLY BRIEF**

**December 24, 2008**

Mail Stop Appeal Brief - Patents  
Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

This Reply Brief is being filed in accordance with 37 C.F.R. §41.50(a)(2) in response to the Supplemental Examiner's Answer mailed on 12/16/2008. This Reply Brief replaces the Amended Appeal Brief filed by Appellant on 03/22/2007, and the Rebuttal Brief filed by Appellant on 08/16/2007. The \$500 fee under 37 CFR 41.20(b)(2) was submitted with the original Appeal Brief filed by Appellant on 01/10/2007. If any additional fees are due please deduct from deposit account no. 07-1857.

This Reply Brief is being filed within two months of the Supplemental Examiner's Answer mailed on 12/16/2008. The rejections contained in the final Office Action mailed 10/10/2006 are being appealed.

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**i. REAL PARTY IN INTEREST**

The real party in interest in the appeal is Micron Technology Inc., the assignee of record of the patent application.

**ii. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

### **iii. STATUS OF CLAIMS**

Claims 1-51 (canceled).

Claims 52-62 (rejected).

Claims 63-69 (canceled).

Claims 70-77 (rejected).

Claims 52-62 and 70-77 are being appealed.

**iv. STATUS OF AMENDMENTS**

No amendments have been filed subsequent to the final Office Action mailed 10/10/2006.

## **v. SUMMARY OF CLAIMED SUBJECT MATTER**

The rejected claims are directed to a semiconductor component (un-numbered) which is shown in Figure 4. The component includes a substrate 10 (Figure 4, page 7, line 9) comprising a plurality of semiconductor components 12 (Figure 4, page 7, line 10). As described on page 7, lines 8-23 of the specification, the substrate 10 (Figure 4) can comprise a semiconductor wafer, and the semiconductor components 12 (Figure 4) can comprise semiconductor dice 54 (Figure 7B) or semiconductor packages 52 (Figure 7B).

Each semiconductor component 12 (Figure 4) includes a plurality of component contacts 28 (Figure 4, page 7, line 21), such as bond pads 58 (Figure 7B, page 16, line 21), and a plurality of integrated circuits 56 (Figure 7B, page 16, lines 20-22) in electrical communication with the component contacts 28 (Figure 4). In addition, the semiconductor components 12 (Figure 4) include a plurality of good components (same as semiconductor components 12-Figure 4), and at least one defective component 12D (Figure 4). The good components 12 and the defective component 12D are initially described on page 7, lines 24-30 of the specification.

Each component 12 (Figure 4) also includes a plurality of redistribution conductors 22 (Figure 2F, page 14, lines 10-13) configured to perform the functions of redistributing the component contacts 28 (Figure 4) on the good components 12 (page 10, lines 22-30), and of either repairing, reconfiguring, or electrically isolating the defective components 12D (page 13, line 22 to page 14, line 9). In addition, the conductors 22 (Figure 2F) have a pattern containing information (page 13, lines 27-29) in the form of digital data 36 (Figure 3) representing the locations of the good components 12, the defective component 12D and the component contacts 28 (page 12, lines 8-15).

The following "Independent Claim Map" further identifies the recitations in independent claims 52, 56, 60 and 70.

### Independent Claim Map

52. A semiconductor component (**un-numbered, Figure 4**) comprising:

a substrate **10 (Figure 4, page 7, line 9)** comprising a plurality of semiconductor components **12 (Figure 4, page 7, line 10)**, each component **12 (Figure 4)** including a plurality of component contacts **28 (Figure 4, page 7, line 21)** and a plurality of integrated circuits **56 (Figure 7B page 16, lines 20-22)** in electrical communication with the component contacts **28 (Figure 4, page 7, line 21)**, the components **12 (Figure 4, page 7, line 10)** including a plurality of good components (**same as component 12-Figure 4, page 7, lines 24-30**) and at least one defective component **12D (Figure 4, page 7, lines 24-30)**; and

a plurality of redistribution conductors **22 (Figure 2F, page 14, lines 10-13)** on the components **12 (Figure 4, page 7, line 10)** in electrical communication with the component contacts **28 (Figure 4, page 7, line 21)** configured to repair the defective component **12D (Figure 4, page 13, line 22 to page 14, line 9)**, the conductors **22 (Figure 2F)** having a pattern containing information (**page 13, lines 27-29**) from testing of the semiconductor components representing locations of the good components, the defective component and the component contacts (**page 12, lines 8-15**), and for repairing the defective component (**page 13, lines 24-26**).

56. A semiconductor component (**un-numbered, Figure 4**) comprising:

a substrate **10 (Figure 4, page 7, line 9)** comprising a plurality of components **12 (Figure 4, page 7, line 10)** including a plurality of component contacts **28 (Figure 4, page 7, line 21)**;



the components **12 (Figure 4)** including a plurality of good components (**same as component 12-Figure 4, page 7, lines 24-30**) and at least one defective component **12D (Figure 4, page 7, lines 24-30)**; and

a plurality of redistribution conductors **22 (Figure 2F, page 14, lines 10-13)** on the components **12 (Figure 4)** configured to electrically isolate the component contacts **28 (Figure 4)** on the defective component **12D (Figure 4)**, the conductors **22 (Figure 2F)** having a pattern containing information (**page 13, lines 27-29**) from testing of the components representing locations of the good components, the defective component and the component contacts (**page 12, lines 8-15**), and for electrically isolating the defective component (**page 14, lines 6-9**).

60. A semiconductor component (**un-numbered, Figure 4**) comprising:

a substrate **10 (Figure 4, page 7, line 9)** comprising a plurality of semiconductor components **12 (Figure 4, page 7, line 10)**, each component **12 (Figure 4)** comprising a plurality of integrated circuits **56 (Figure 7B, page 16, lines 20-22)** and a plurality of component contacts **28 (Figure 4, page 7, line 21)** in electrical communication with the integrated circuits **56 (Figure 7B)**, the components including a plurality of good components (**same as component 12-Figure 4, page 7, lines 24-30**) and at least one defective component **12D (Figure 4, page 7, lines 24-30)**; and

a plurality of redistribution conductors **22 (Figure 2F, page 14, lines 10-13)** on the components **12 (Figure 4)** having a pattern containing information (**page 13, lines 27-29**) from testing of the semiconductor components **12 (Figure 4)** representing locations of the good components, the defective component **12D (Figure 4)**, and the

component contacts **28 (Figure 4) (page 12, lines 8-15)**, the conductors **22 (Figure 2F)** configured to reconfigure the component contacts on the defective component **(page 13, lines 33-34)**.

70. A semiconductor component **(un-numbered, Figure 4)** comprising:

a substrate **10 (Figure 4, page 7, line 9)** comprising a plurality of semiconductor components **12 (Figure 4, page 7, line 10)** including a plurality of good components **(same as component 12-Figure 4, page 7, lines 24-30)** and at least one defective component **12D (Figure 4, page 7, lines 24-30)**, each component **12 (Figure 4)** comprising a plurality of component contacts **28 (Figure 4, page 7, line 21)** and a plurality of integrated circuits **56 (Figure 7B, page 16, lines 20-22)** in electrical communication with the component contacts **28 (Figure 4)**; and

a metal redistribution layer **20 (Figure 1, page 13, line 22 to page 14, line 9)** on the substrate **10 (Figure 4)** comprising a plurality of redistribution conductors **22 (Figure 2F, page 14, lines 10-13)** having a pattern containing information **(page 13, lines 27-29)** from testing of the semiconductor components **12 (Figure 4)** representing locations of the good components, the defective component **12D (Figure 4)** and the component contacts **28 (Figure 4)**, the conductors configured to either repair, reconfigure, **(page 13, lines 25-26)** or electrically isolate **(page 14, line 7)** the defective component **12D (Figure 4)**, or to electrically connect multiple good components in a cluster **C2, C3, C4, C11 (Figure 5)** that excludes the defective component **(page 15, lines 27-30)**.

## **vi. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL**

1. Whether the drawings show the feature of "the conductors having a pattern containing information from testing of the semiconductor component".

2. Whether the limitation in the claims of "the conductors having a pattern containing information from testing of the semiconductor components" represents new matter introduced into the disclosure.

3. Whether claims 52, 56, 60 and 70 fail to satisfy the written description requirement of 35 USC §112, first paragraph because the limitation "the conductors having a pattern containing information from testing of the semiconductor components" is not supported by the specification.

4. Whether claims 52-62 and 70-77 are indefinite under 35 USC §112, second paragraph, due to the limitations of:

(a) "a plurality of redistribution conductors... in electrical communication with the component contacts configured to repair the defective component";

(b) "the conductors having a pattern containing information from testing of the semiconductor components.... for repairing the defective component".

5. Whether claims 52-62 and 70-77 are anticipated under 35 USC §102(c) by Tanizawa (US Patent No. 4,721,995).

## **vii. ARGUMENT**

### **1. Objection to the drawings**

The Supplemental Examiner's Answer states on page 3, paragraph 6: "appellant's statement of the grounds of rejection to be reviewed on appeal is correct". However, the Supplemental Examiner's Answer does mention the objection to the drawings, and does not address Issue 1 of the grounds of rejection.

The objection to the drawings is based on the recitation in the claims of "the conductors having a pattern containing information from testing of the semiconductor component". However, the conductors 22 are shown in Figures 2F and 2J. In addition, conductors 22P in a singulated component 52 are shown in Figure 7B. Further, Figure 4 illustrates how defective components 12D can be electrically isolated by the conductors 22. Figure 5 illustrates how defective components 12D can be excluded from clusters C11, C2, C3, C4 by the conductors 22. Figure 7B illustrated how the conductors 22P function to redistribute the pattern of component contacts (bond pads 58) to the pattern of terminal contacts 64.

Still further, verbatim antecedent basis for the "information" characteristics of the conductors is provided on page 13, lines 27-29 of the specification. Verbatim antecedent basis for the "pattern" characteristic of the conductors is provided on page 5, line 6; page 10, line 20; page 11, line 1; page 12, lines 3 and 30; page 13, line 23; and page 14, line 11 of the specification.

With regard to the examiner's interpretation of 37 CFR 1.83(a), it is submitted to be incorrect. Although the drawings must show every feature of the invention specified in the claims, all the characteristics of the feature do not need to be shown in the drawings. For example, if the Applicant were to claim the conductors as having a "high conductivity", or a "reflective surface", these characteristics would not need to be shown in the drawings. Similarly, the presently claimed characteristic of the conductors "having a pattern containing information" need not be shown in the drawings, because it is explained in the specification.

In this regard, under MPEP 608.02, drawings are required "where necessary for the understanding of the subject matter to be patented". In the present case, the drawings show details of the conductors including structure, method of fabrication and function. In

addition, the specification goes into even greater detail on the structure, method of fabrication and function of the conductors. In view of the originally filed drawings and specification, it is submitted that one skilled in the art would understand the claimed subject matter.

Accordingly, the objection to the drawings is submitted to be in error.

## **2. Objection to new matter introduced into the disclosure**

The Supplemental Examiner's Answer does mention the new matter objection, and does not address Issue 2 of the grounds of rejection.

The new matter objection is based on the limitation "the conductors having a pattern containing information from testing of the semiconductor components".

In regard to this limitation, please note page 13, line 22, to page 14, line 9, of the specification.

"Referring again to Figure 1, the redistribution layer 20 can be etched with the conductors 22 in *patterns* selected to achieve different objectives. As a first example, the redistribution layer 20 can be etched to repair or re-configure defective components 12D (Figures 4 and 5). Specifically, the initial testing step identifies the defective components 12D and *this information is contained in the digital data 36 (Figure 3)* supplied to the modulator 34. Some defects can be corrected by providing conductors 22 that substitute redundant circuitry contained on the defective components 12D for defective circuitry.

Other defects can be corrected by configuring or re configuring the component 12D in a particular electrical format. For example, a memory component (e.g., DRAM) may be defective when configured as a 1 Meg X 16 device (i.e., 1 megabit deep by 16 bits wide = 16 megabits of total memory). However, the memory component may not be defective when configured as a 4 Meg X 4 device (i.e., 4 megabits deep by 4 bits wide = 16 megabits of total memory). *By electrically connecting, or alternately electrically isolating, selected component contacts 28 using the conductors 22 different configurations can be achieved.*" (italics added)

In view of the foregoing original disclosure, the new matter objection is submitted to be in error.

**3. 35 USC §112, second paragraph, rejections of claims 52, 56, 60 and 70 due to insufficient written description**

The 35 USC §112, second paragraph, rejections of claims 52, 56, 60 and 70 due to insufficient written description have been withdrawn by the Examiner (page 12, paragraph (10) of Supplemental Examiner's Answer).

**4. 35 USC §112, second paragraph, rejections of claims 52, 56, 60 and 70 due to indefiniteness**

The 35 USC §112, second paragraph, rejections of claims 52, 56, 60 and 70 due to indefiniteness are submitted to be in error. With regard to these rejections the final Office Action states:

(a) Regarding the limitation "a plurality of redistribution conductors . . . in electrical communication with the component contacts configured to repair the defective components" how is the plurality of conductors configured to repair the defective component?".

The Supplemental Examiner's Answer states on page 13, lines 7-8: "it is not clear how the redistribution function of the conductors 22 teaches the repairing the defective component".

However, the "repair" recitation is not present in independent claims 56 and 60. Specifically, independent claim 56 states the conductors 22 are "configured to **electrically isolate** the component contacts on the defective component". Independent claim 60 states the conductors 22 are "configured to **reconfigure** the component contacts on the defective component".

Independent claims 52 and 70 include the recitation of the conductors being configured to "repair" the defective component. Claims are to be read in light of the specification. In re Okuzawa, 537 F.2d 563, 190 USPQ 464 (CCPA 1976). In addition, only a person of ordinary skill in the art to which the invention pertains need be enabled by the application disclosure. In re Naquin, 158 USPQ 317 (CCPA 1968).

The present specification (e.g., page 13, line 22 to page 14, line 9) explains how the "repair" function of the redistribution conductors can be performed. The Supplemental Examiner's Answer states on page 13, lines 10-13: "In order to repair any

defective component, there must be some kind of special circuit designs that able to repair the defective component by switching on and off the specific circuits in the defective component". In the present claims the "special circuit design" is provided by the pattern of the redistribution conductors. It is submitted that in light of the specification, one skilled in the art could construct the redistribution conductors to perform the stated repair function.

With regard to the indefiniteness rejections, the final Office Action further states:

(b) Regarding the limitation "the conductor having a pattern containing information from testing of the semiconductor components... for repairing the defective component" it is unclear how the pattern of a conductor contains information from testing of the semiconductor components . . . when the conductor is nothing more than a metal wire and not software".

However, a map is nothing more than lines on a piece of paper, but it contains information. A book is nothing more than an assembly of words, but it contains information. In the present case, the conductors comprise metal lines on a substrate, but they contain information in the form of a unique pattern that allows defective components to be repaired, reconfigured, electrically isolated or excluded from clusters.

Appellant would further respond that in formulating claims, an applicant may use either conventional terms, or may be his own lexicographer, as long as the meaning is clear. In re Cataing, 429 F.2d 461, 166 USPQ 550 (CCPA 1970).

In the present case, the pattern of conductors includes information in the form of digital data. This information provides the conductors with a physical structure that performs the function of repairing, reconfiguring, electrically isolating or excluding the defective components 12D from clusters. It is submitted that when read in light of the specification this meaning is clear, and that the metes and bounds of the claims can be ascertained.

The Supplemental Examiner's Answer states on page 14, line 3, that the above recitation is indefinite due to the term "repairing". However, as argued above, the "repairing" term is not used in claims 56 and 60. As also argued above, one skilled in the art could construct redistribution conductors to perform a repair function.

In view of the foregoing, the indefinite rejections are submitted to be in error.

**5. 35 USC §102(e) rejections of claims 52-62 and 70-77 over Tanizawa**

The rejections under 35 USC §102(b) are traversed because this reference does not disclose or enable all of the limitations of the claimed semiconductor component.

In Tanizawa an insulative film 5 (Figures 3(a), 3(b)) includes two types of circuit patterns 6 (column 3, lines 14-16). The circuit patterns 6 are the conductive traces which are shown in Figure 3(a) without a reference numeral. As shown in Figures 3(a) and 3(b), and described at column 3, lines 14-33, the first type of circuit patterns 6 are used to interconnect good circuit blocks 2. As shown in Figures 6(a) and 6(b), and described at column 3, lines 35-54, the second type of circuit patterns 6 are used to connect repair chips 8, which are stacked on and bonded to defective circuit blocks 2 (column 6, lines 21-23).

Each independent claim (52, 56, 60, 70) recites "redistribution conductors having a pattern containing information from testing of the semiconductor components". In the Supplemental Examiner's Answer the bonding pads 6(b) in Figure 6b (column 5, line 48) were identified as being redistribution conductors. However, the bonding pads 6B, have a different structure and a different function than redistribution conductors.

The Supplemental Examiner's Answer also states "Since the circuit patterns 6 connect one contact in one location to the other contact in the other location and made of copper (column 5, lines 37 and 38), hence the circuit pattern of Tanizawa read as redistribution conductors".

However, as shown in Figure 6 of Tanizawa, the contact locations connected by the circuit patterns 6 are on different circuit blocks 2 (i.e., different components). The circuit patterns 6 do not function as "redistribution conductors" because they do not redistribute the pattern of the component contacts (pads 4-Figure 3(b)) on a component, but rather interconnect the circuit blocks 2.

Redistribution conductors have a special purpose in the art (see page 10, lines 25-30 of the present specification), which is not performed by the circuit patterns 6 in Tanizawa. At the time of the Tanizawa patent (10/05/1984) redistribution conductors were not utilized. The circuit patterns 6 (and the bonding pads 6B) in Tanizawa cannot and do not perform the function of redistribution conductors.



The Supplemental Examiner's Answer also states that "the pattern 6B of Tanizawa contains information from testing of the semiconductor components to distinguish good and bad components." This is also not correct as the circuit patterns 6 (and the bonding pads 6B) have a pattern for interconnecting the pads 4 (Figure 6(b)) on the circuit blocks 2 (Figure 6(b)) to the pads 9 (Figure 6(b)) on a repair chip 8 (Figure 6(b)). In Tanizawa, the information is on the location of the defective circuit block 2, the pattern of the bonding pads 6B is the same regardless of this information.

Similarly, the circuit patterns 6 in Tanizawa are not "redistribution conductors on the components" as presently claimed, but rather are wiring patterns on a separate film which interconnect the components. The Supplemental Examiner's Answer states this argument "is not persuasive because appellant does not specifically claim that the redistribution conductors are unified or integrated conductors." However, the integrated structure is inherent in the term "redistribution conductors", just as TAB conductors would inherently be on a separate film, and interlevel conductors would inherently interconnect different layers of a component.

In addition, as shown in Figure 3(a) of Tanizawa, the circuit patterns 6 are not on the circuit blocks 2, but rather are in the streets between the circuit blocks 2. The Supplemental Examiner's Answer states that the claims do not specify the location of the redistribution conductors. However, the location on a component is inherent in the definition of a redistribution conductor. If the circuit blocks 2 in Tanizawa were to be singulated as is conventional in semiconductor manufacture, the circuit patterns 6 would also be singulated. The circuit patterns 6 thus would not function as redistribution conductors.

In the final office action, the examiner has characterized the recitation of the "conductors having a pattern containing information from testing of the semiconductor components...for repairing the defective component" as being "functional or intended use language that does not differentiate the claimed structure over Tanizawa".

However, the examiner's interpretation of this claim language is incorrect. The subject recitation is neither functional nor intended use language. Functional language means a structure is stated to perform a certain function, which is not the case here. Intended use language means a structure can be used for a certain purpose, which is also

not the case here. Rather, the presently claimed conductors, are stated to have the physical characteristic of a pattern containing information from testing of the components. This physical characteristic allows the conductors to perform the stated functions of repair, reconfiguration, electrical isolation, or connection of good components in clusters.

As the recitation is submitted to be structural rather than functional, it is submitted to distinguish the claimed component from the art. Also please note that under the criteria established by MPEP 2114, and In re Schreiber, 128 F.3d 1473, 1477-78, 44 USPQ 1429, 1431-2 (Fed Cir. 1997), the above noted structural limitation distinguishes the claimed component from the prior art.

MPEP 2114 also states: "A prior art device can perform all the functions of the apparatus claims and still not anticipate the claim. Even if the prior art device performs all the functions recited in the claim, the prior art cannot anticipate the claim if there is any structural difference."

In support of the rejections, the examiner also states "Since the term "information" is defined as the locations (i.e., the good components, the defective component and the component contacts) and the patterned conductor of Tanizawa also represents the locations (i.e., the good components, the defective component and the component contacts), the patterned conductor of Tanizawa contains the information. Thus Tanizawa meets the claim."

This interpretation of the claims and the reference is submitted to be incorrect. In the present component, the conductors not only locate the good components and the defective component, but they also either repair the defective component, reconfigure the component contacts, electrically isolate the defective component, or connect good components in clusters. In Tanizawa, the defective circuit block 2 (defective component) is electrically isolated by punching out the circuit pattern 6 corresponding to the defective circuit block 2 (column 3, lines 19-21). The defective circuit block 2 is then replaced by a repair chip 8 (Figure 6b).

With respect to the rejections under 35 USC §102, each independent claim includes a different recitation on the configuration of the redistribution conductors. Accordingly, each independent claim is being argued separately.

Independent claim 52 and dependent claims 53-55

Independent claim 52 recites "redistribution conductors on the components .... having a pattern containing information from testing of the semiconductor components representing locations of the good components, the defective component and the component contacts, and for repairing the defective component".

The feature of redistribution conductors configured to perform a repair function is not disclosed or enabled by Tanizawa. In this regard, the circuit patterns 6 (Figure 3(a)) in Tanizawa are not "redistribution conductors" on the circuit blocks 2 (Figure 3(a)), but rather are traces on an insulative film 5, which are located between the circuit blocks 2. In addition, the defective circuit blocks 2 in Tanizawa are "replaced" rather than "repaired". As redistribution conductors configured to perform a repair function are not disclosed or enabled by Tanizawa, the 35 USC §102 rejections of claims 52-55 are submitted to be in error.

Independent claim 56 and dependent claims 57-59

Independent claim 56 recites "redistribution conductors on the components configured to electrically isolate the component contacts on the defective component, the conductors having a pattern containing information from testing of the components representing locations of the good components, the defective component and the component contacts, and for electrically isolating the defective component."

Admittedly the circuit patterns 6 in Tanizawa are configured to electrically isolate defective circuit blocks 2. However, the circuit patterns are not "redistribution conductors" on the components as presently claimed, but rather are traces on an insulative film 5 located between the circuit blocks 2.

As redistribution conductors configured to perform an isolation function are not disclosed or enabled by Tanizawa, the 35 USC §102 rejections of claims 56-59 are submitted to be in error.

Independent claim 60 and dependent claims 61-62

Independent claim 60 recites "redistribution conductors on the components having a pattern containing information from testing of the semiconductor components representing locations of the good components, the defective component and the component contacts, the conductors configured to reconfigure the component contacts on the defective component."

The circuit patterns 6 in Tanizawa are not configured to reconfigure the pads 4 on defective circuit blocks 2. Rather the circuit patterns 6 are punched out to electrically isolate defective circuit blocks 2 (column 3, lines 19-21).

With respect to the "reconfigure" limitation, the Office Action states: "Since the contacts 4 on the bad chip 2 are physically attached to the contacts 9 on the good chip 8 thru the good chip 8 the contacts 9 read as reconfigured contact of the contacts 4. Thus Tanizawa fully meets this limitation."

However, the circuit patterns 6 are not performing a reconfiguration of the component contacts even under this interpretation of Tanizawa. Rather, the repair chip 8 is an additional element that replaces the defective circuit block 2. The previously cited passage on page 13, line 24 to page 14, line 1 of the present specification states what is meant by the term "reconfigure" in the present claims.

As redistribution conductors configured to reconfigure component contacts are not disclosed or enabled by Tanizawa, the 35 USC §102 rejections of claims 60-62 are submitted to be in error.

Independent claim 70 and dependent claims 71-77

Independent claim 70 recites "a metal redistribution layer on the substrate comprising a plurality of redistribution conductors having a pattern containing information from testing of the semiconductor components representing locations of the good components, the defective component and the component contacts, the conductors configured to either repair, reconfigure, or electrically isolate the defective component, or to electrically connect multiple good components in a cluster that excludes the defective component."

The circuit patterns 6 in Tanizawa are not a metal redistribution layer on a substrate comprising a plurality of semiconductor components. Rather, as shown in Figure 6(b) and stated at column 5, line 46-47, the circuit patterns 6 are on an insulative film 5. In addition, the circuit patterns 6 in Tanizawa do not have the structure of a metal redistribution layer and do not inherently perform the function of a metal redistribution layer. Further, the circuit patterns 6 in Tanizawa are not configured to either repair a defective component, reconfigure component contacts on a defective component, electrically isolate a defective component or cluster good components.

As a redistribution layer and redistribution conductors configured to perform the stated functions are not disclosed or enabled by Tanizawa, the 35 USC §102 rejections of claims 70-77 are submitted to be in error.

### **viii. Claims appendix**

52. A semiconductor component comprising:

a substrate comprising a plurality of semiconductor components, each component including a plurality of component contacts and a plurality of integrated circuits in electrical communication with the component contacts, the components including a plurality of good components and at least one defective component; and

a plurality of redistribution conductors on the components in electrical communication with the component contacts configured to repair the defective component, the conductors having a pattern containing information from testing of the semiconductor components representing locations of the good components, the defective component and the component contacts, and for repairing the defective component.

53. The component of claim 52 wherein the components include a second defective component and the conductors are configured to electrically isolate the second defective component.

54. The component of claim 52 wherein the components include a second defective component and the conductors are configured to reconfigure the component contacts on the second defective component.

55. The component of claim 52 wherein the components include a second defective component and the conductors are configured to electrically connect multiple components in a cluster that excludes the second defective component.

56. A semiconductor component comprising:

a substrate comprising a plurality of components including a plurality of component contacts;

the components including a plurality of good components and at least one defective component; and

a plurality of redistribution conductors on the components configured to electrically isolate the component contacts on the defective component, the conductors having a pattern containing information from testing of the components representing locations of the good components, the defective component and the component contacts, and for electrically isolating the defective component.

57. The component of claim 56 further comprising a plurality of terminal contacts on the good components in electrical communication with the conductors and the component contacts on the good components.

58. The component of claim 56 wherein the conductors are configured to electrically connect a plurality of good components in a cluster that excludes the defective component.

59. The component of claim 56 wherein the substrate comprises a semiconductor wafer, and the components comprise semiconductor dice or semiconductor packages.

60. A semiconductor component comprising:

a substrate comprising a plurality of semiconductor components, each component comprising a plurality of integrated circuits and a plurality of component contacts in electrical communication with the integrated circuits, the components including a plurality of good components and at least one defective component; and

a plurality of redistribution conductors on the components having a pattern containing information from testing of the semiconductor components representing locations of the good components, the defective component and the component contacts, the conductors configured to reconfigure the component contacts on the defective component.

61. The component of claim 60 further comprising a plurality of terminal contacts on the good components in electrical communication with the conductors and the component contacts on the good components.

62. The component of claim 60 wherein the substrate comprises a semiconductor wafer or portion thereof and the components comprise dice or packages.

Claims 63-69 (canceled)

70. A semiconductor component comprising:

a substrate comprising a plurality of semiconductor components including a plurality of good components and at least one defective component, each component



comprising a plurality of component contacts and a plurality of integrated circuits in electrical communication with the component contacts; and

a metal redistribution layer on the substrate comprising a plurality of redistribution conductors having a pattern containing information from testing of the semiconductor components representing locations of the good components, the defective component and the component contacts, the conductors configured to either repair, reconfigure, or electrically isolate the defective component, or to electrically connect multiple good components in a cluster that excludes the defective component.

71. The component of claim 70 wherein the good components include a plurality of terminal contacts in electrical communication with the component contacts on the good components.

72. The component of claim 70 wherein the component contacts comprise bond pads.

73. The component of claim 70 wherein the conductors on the good components have a fan out configuration.

74. The component of claim 70 wherein the substrate comprises a semiconductor wafer.

75. The component of claim 70 further comprising a protective layer on the conductors on the good components.

76. The component of claim 70 wherein the components comprise semiconductor packages or dice.

77. The component of claim 70 wherein the components include a second defective component and the conductors are configured to repair, reconfigure or electrically isolate the second defective component.

**ix. Evidence appendix**

Included are copies of the evidence relied upon by the examiner as to the grounds of rejection under 35 USC §102 to be reviewed on appeal.

1. Tanizawa (US Patent No. 4,721,995)

**x. Related proceedings appendix**

None.

### **Conclusion**

In view of the foregoing arguments, Appellant submits the rejections of claims 52-62 and 70-77 are not proper. Appellant thus requests reversal of the rejections, and allowance of claims 52-62 and 70-77.

DATED this 24th day of December, 2008.

Respectfully submitted:

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